

# Enhanced Delta Smelt Monitoring

## Preliminary Abundance Analysis

### DRAFT

U.S. Fish and Wildlife Service

January 20, 2017

This analysis is preliminary and the results are subject to correction and revision. The following points should be taken into consideration when interpreting the results:

1. Delta smelt caught in the wings of the net (as opposed to the live box or cod end) were excluded from this analysis. Fish caught in the wings are indicated by a Gear Condition Code of 9.
2. Abundance estimates labeled **Total** exclude any strata that were not sampled in a given week.
3. The **Week** designations used here were defined out of convenience and are subject to change.
4. Estimation difficulties in Week 4 lead to the use of a different estimation method between Weeks 1 – 3 and Week 4 in the report from January 14, 2017. In this report, the original method has been applied to all weeks with an updated optimization method. This has lead to relatively small changes in abundance in Weeks 1 – 3 relative to previous reports, and a large change in the Week 4 Low Risk, High Density estimate.

Table 1: Abundance estimates by week.

Week	Dates	Stratum	NumOfSites	Estimate and 95% CI		
				Abundance	Lower Bound	Upper Bound
1	Dec 15 - Dec 22	High Risk, High Density	12	3,446	1,200	7,861
		High Risk, Low Density	0	NA	NA	NA
		Low Risk, High Density	11	91,923	44,348	169,498
		Low Risk, Low Density	0	NA	NA	NA
		Total	23	95,369	47,213	172,672
2	Dec 27 - Dec 29	High Risk, High Density	10	11,243	5,403	20,787
		High Risk, Low Density	0	NA	NA	NA
		Low Risk, High Density	6	467,217	178,440	1,006,770
		Low Risk, Low Density	0	NA	NA	NA
		Total	16	478,459	186,891	1,016,359
3	Dec 30 - Jan 5	High Risk, High Density	15	24,346	13,617	40,316
		High Risk, Low Density	0	NA	NA	NA
		Low Risk, High Density	9	137,290	47,331	315,165
		Low Risk, Low Density	0	NA	NA	NA
		Total	24	161,636	65,121	336,584
4	Jan 6 - Jan 12	High Risk, High Density	11	2,495	884	5,633
		High Risk, Low Density	6	4,782	1,447	11,849
		Low Risk, High Density	3	253,743	83,929	597,118
		Low Risk, Low Density	0	NA	NA	NA
		Total	20	261,020	88,981	603,276

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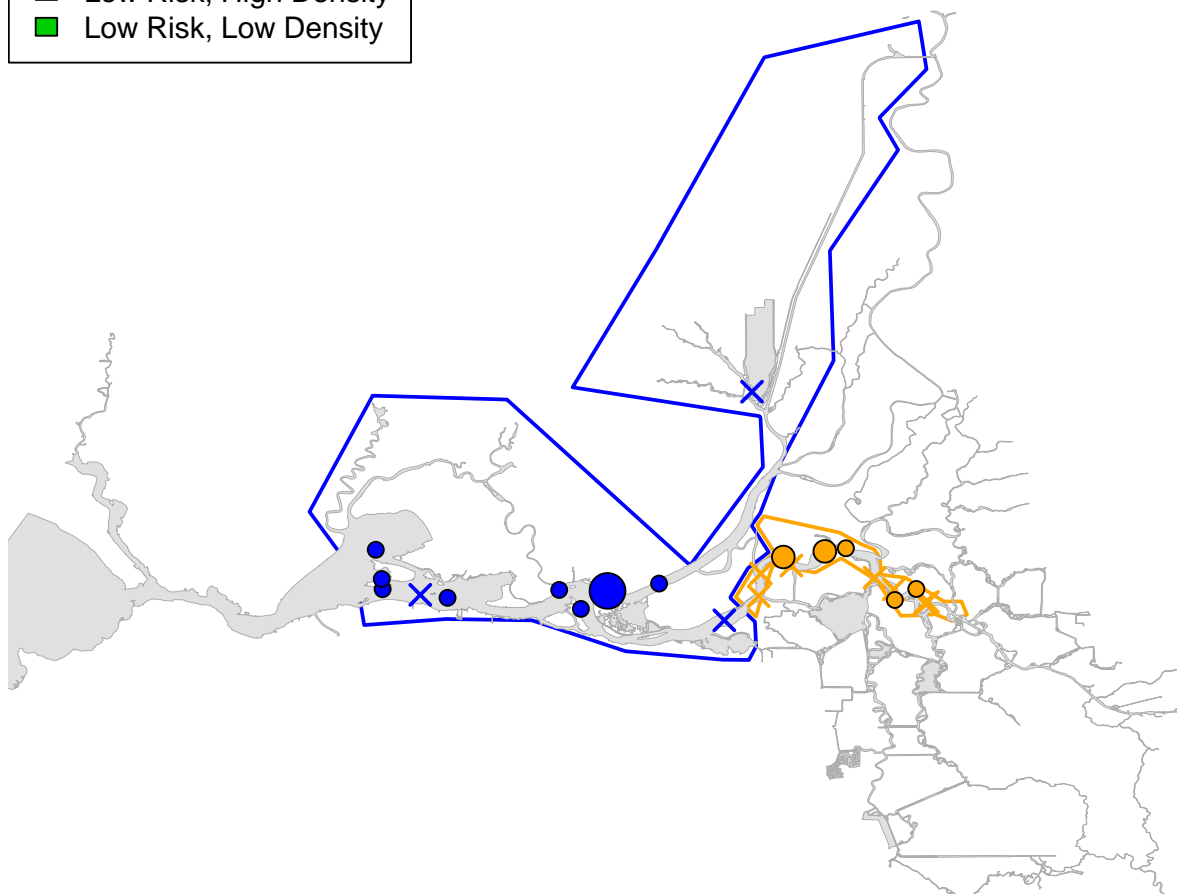
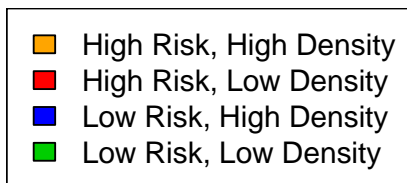
Week	Dates	Stratum	NumOfSites	Estimate and 95% CI		
				Abundance	Lower Bound	Upper Bound
5	Jan 17 - Jan 19	High Risk, High Density	8	3,788	919	10,581
		High Risk, Low Density	0	NA	NA	NA
		Low Risk, High Density	8	70,983	26,418	155,463
		Low Risk, Low Density	0	NA	NA	NA
		Total	16	74,771	29,175	158,938

Table 2: Proportion of delta smelt in high density areas that are also in high risk areas. Week 4 has been omitted to avoid confusion.

Week	Estimate and 95% CI		
	Proportion	Lower Bound	Upper Bound
1	0.036	0.010	0.093
2	0.023	0.007	0.056
3	0.151	0.054	0.339
5	0.051	0.010	0.156

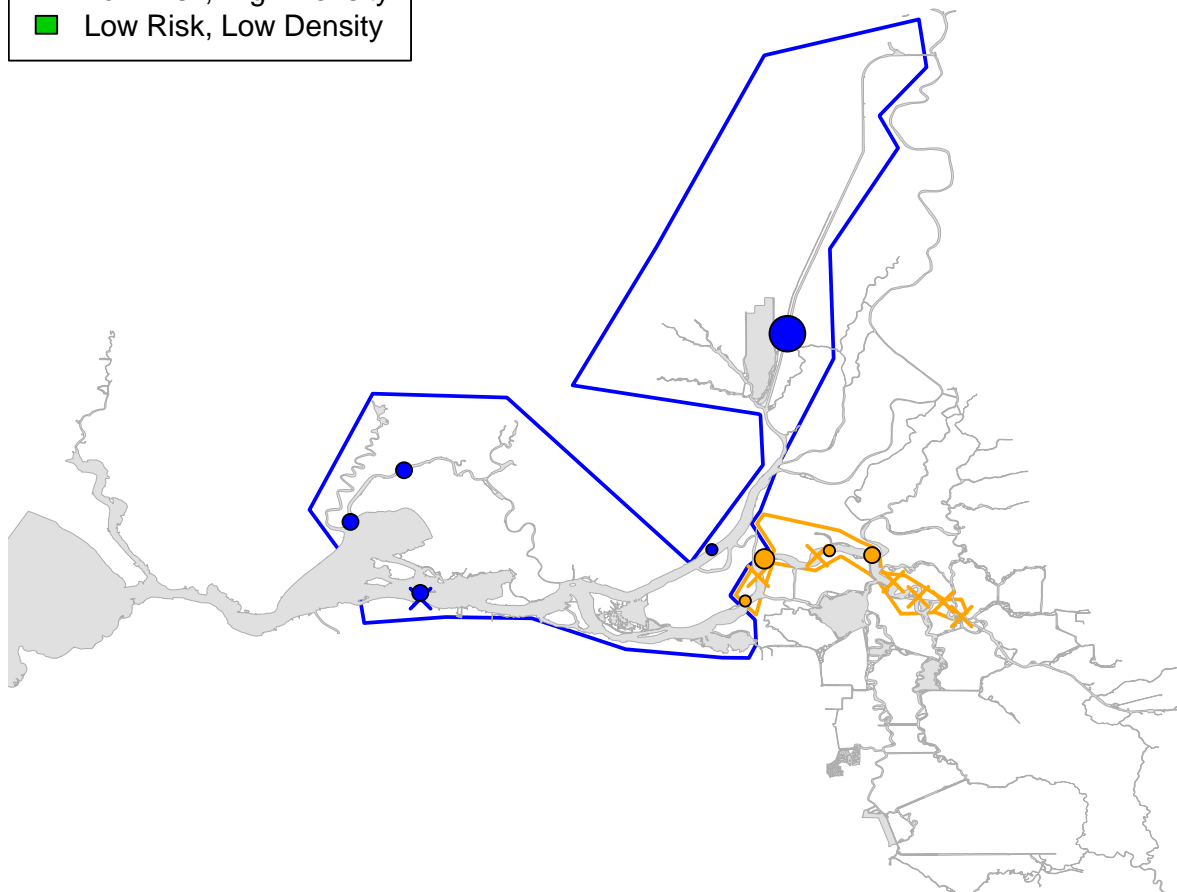
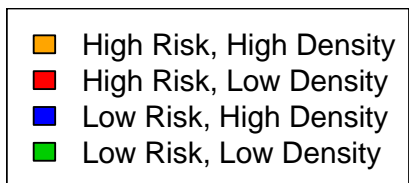
### Week 1 DSM catches (X = no catch)

23 sites; 19 DSM total



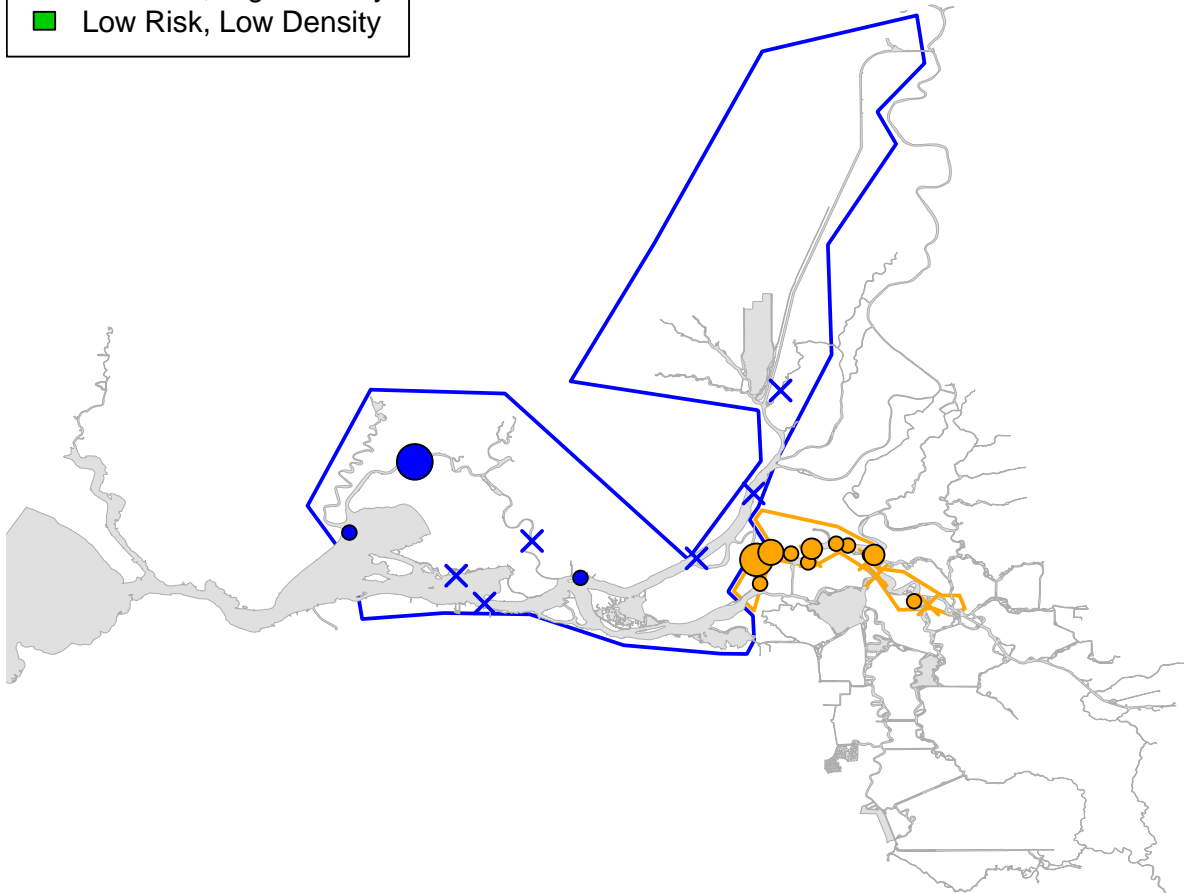
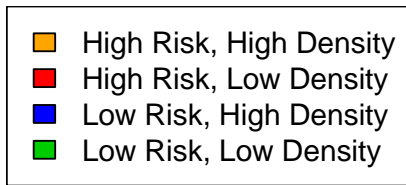
## Week 2 DSM catches (X = no catch)

16 sites; 24 DSM total



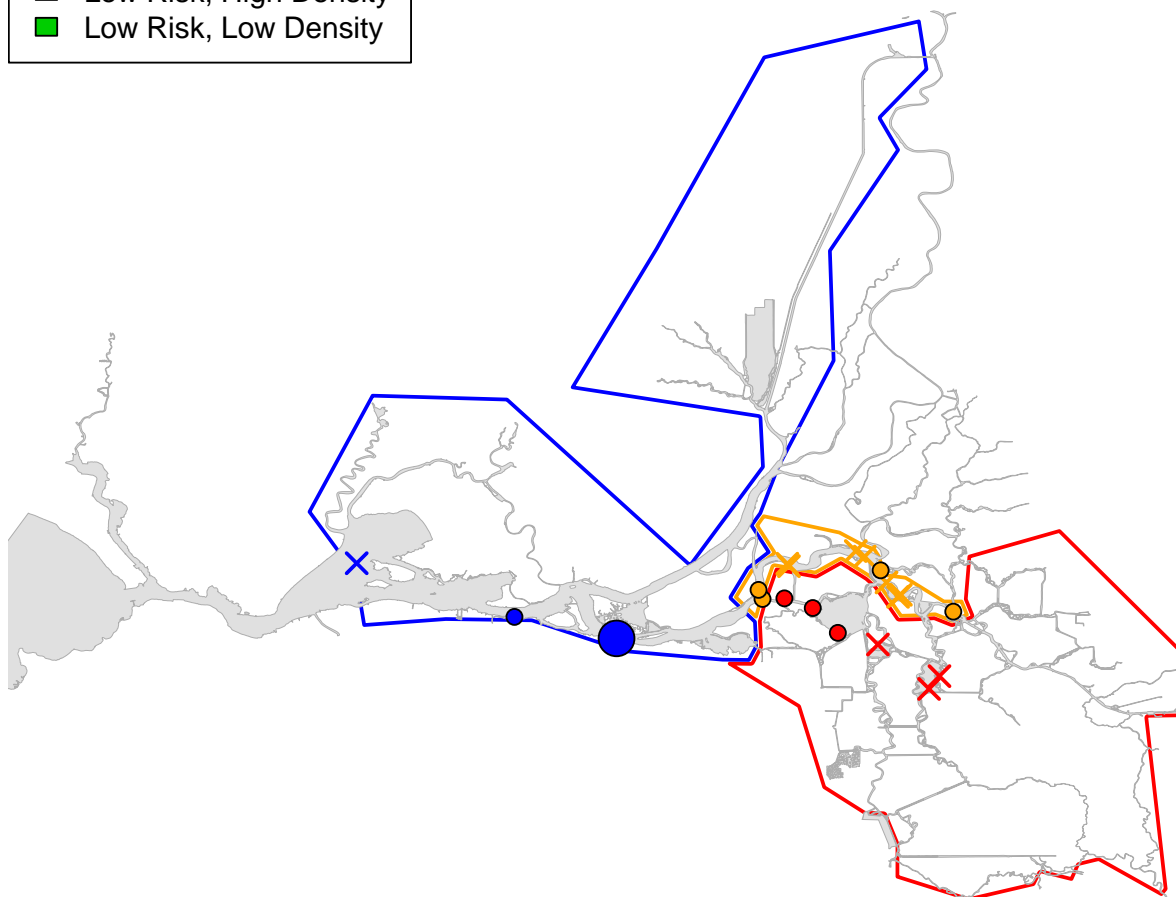
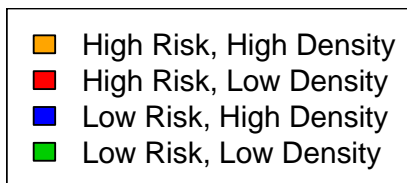
### Week 3 DSM catches (X = no catch)

24 sites; 27 DSM total



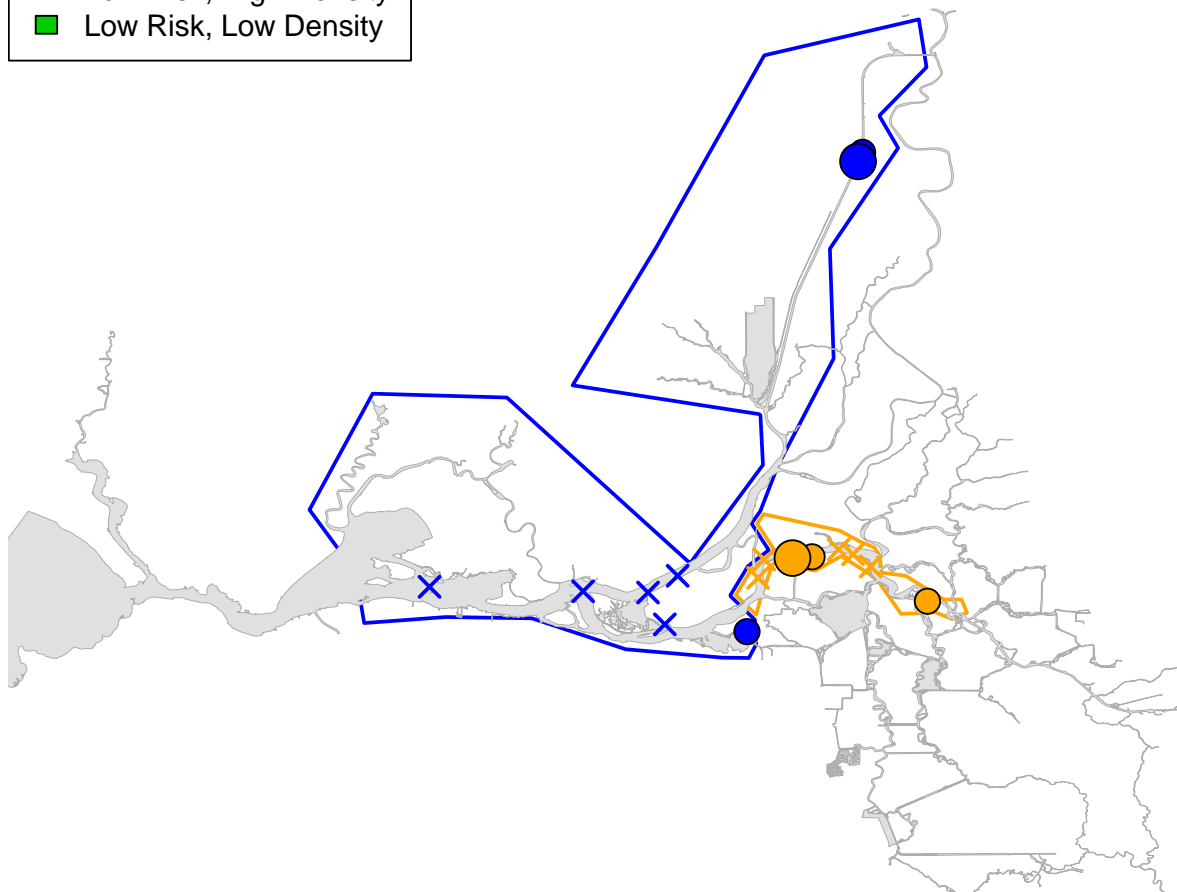
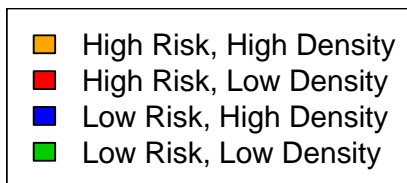
### Week 4 DSM catches (X = no catch)

20 sites; 13 DSM total



### Week 5 DSM catches (X = no catch)

16 sites; 8 DSM total



## All Sampling Locations To Date

